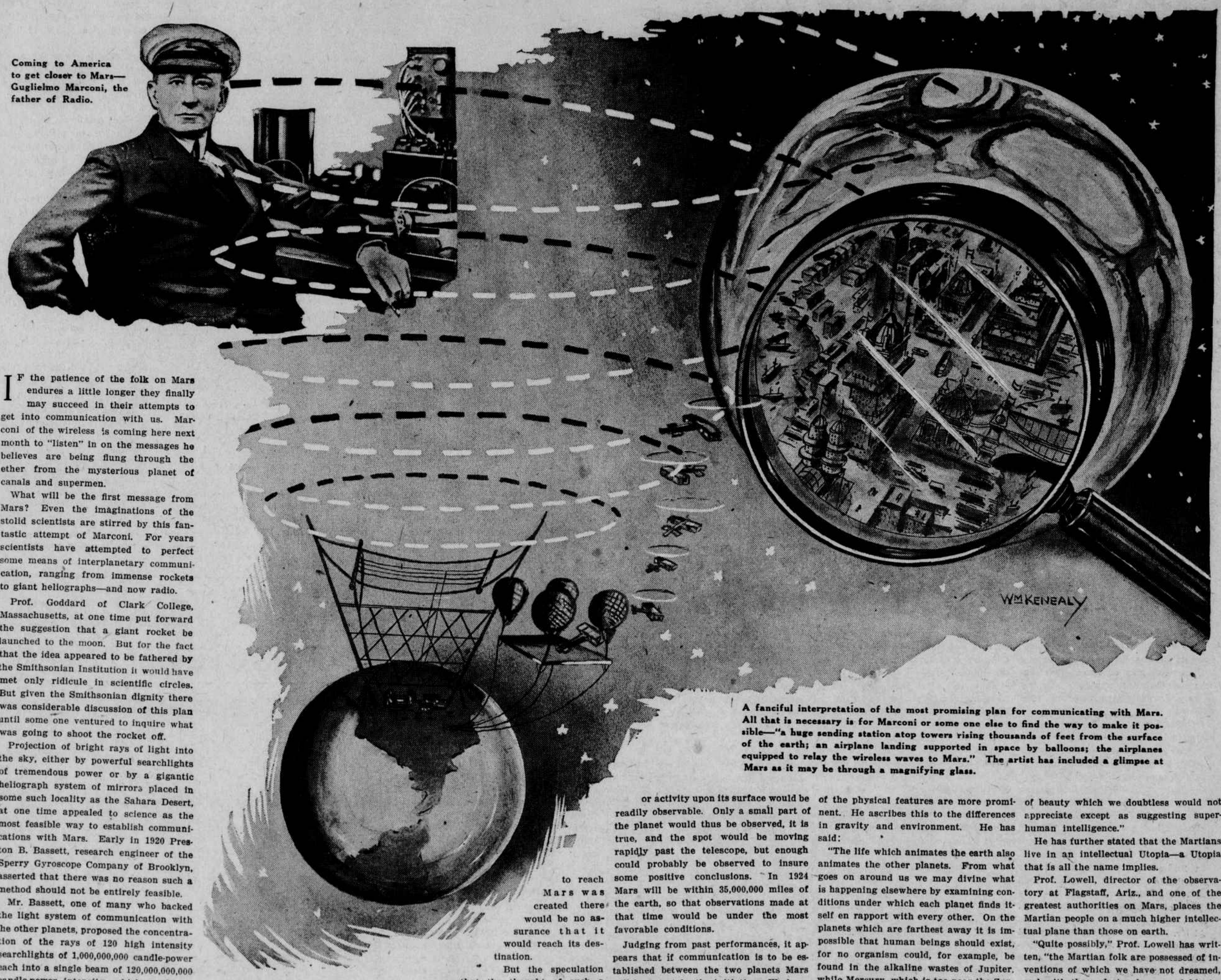
Will Marconi Succeed *in his* "Listening In" *on* Mars



Coming to America to get closer to Mars—Guglielmo Marconi, the father of Radio.

A fanciful interpretation of the most promising plan for communicating with Mars. All that is necessary is for Marconi or some one else to find the way to make it possible—"a huge sending station atop towers rising thousands of feet from the surface of the earth; an airplane landing supported in space by balloons; the airplanes equipped to relay the wireless waves to Mars." The artist has included a glimpse at Mars as it may be through a magnifying glass.

IF the patience of the folk on Mars endures a little longer they finally may succeed in their attempts to get into communication with us. Marconi of the wireless is coming here next month to "listen" in on the messages he believes are being flung through the ether from the mysterious planet of canals and supermen.

What will be the first message from Mars? Even the imaginations of the stolid scientists are stirred by this fantastic attempt of Marconi. For years scientists have attempted to perfect some means of interplanetary communication, ranging from immense rockets to giant heliographs—and now radio.

Prof. Goddard of Clark College, Massachusetts, at one time put forward the suggestion that a giant rocket be launched to the moon. But for the fact that the idea appeared to be fathered by the Smithsonian Institution it would have met only ridicule in scientific circles. But given the Smithsonian dignity there was considerable discussion of this plan until some one ventured to inquire what was going to shoot the rocket off.

Projection of bright rays of light into the sky, either by powerful searchlights of tremendous power or by a gigantic heliograph system of mirrors placed in some such locality as the Sahara Desert, at one time appealed to science as the most feasible way to establish communications with Mars. Early in 1920 Preston B. Bassett, research engineer of the Sperry Gyroscope Company of Brooklyn, asserted that there was no reason such a method should not be entirely feasible.

Mr. Bassett, one of many who backed the light system of communication with he other planets, proposed the concentration of the rays of 120 high intensity searchlights of 1,000,000,000 candle-power each into a single beam of 120,000,000,000 candle-power intensity, which would result in a signal which, he claimed, could be easily read on Mars, provided that planet was inhabited and that the inhabitants possessed telescopic instruments of equal strength to those used on earth.

But all methods suggested have been proved impracticable even before given a test. Radio seems to hold out the most hope. Radio, Marconi reminds, gave science our first real hope of interplanetary communication.

One night in January, 1920, Marconi operators in several different wireless stations, of which the most important was the London station, were startled by a series of "mysterious" messages of extraordinary wave length which they could not trace.

The operators wondered, unable to explain these strange signals. Finally it was observed that they were receiving a series of S's. The "toc—toc—toc" was in reality three dots, which in Morse code represents the letter S. Each message consisted of a group of three S's.

Later a query was broadcasted to wireless stations the world over in an attempt to find the source of the phantom signals. It was found the messages were of no traceable origin.

"Could it be Mars?" a startled world asked itself. And in answer a controversy arose with one side defending the Mars theory and the other bitterly opposing it with explanations of "atmospheric discharges," "magnetic storms," "thunder storms on the sun" and other natural phenomena.

Marconi at the time said: "I would be a bold speculator were I to declare positively that one or more of the planets are attempting to send us some kind of messages, but it is equally futile to deny that such a thing is possible, in view of our incomplete knowledge of such a profound subject.

"What actually has happened in this throbbing mystery is that signals have been received which apparently are due to electro-magnetic waves of great length which are not merely stray signals."

Interest was revived in interplanetary communication—even in the minds of those most skeptical of the source of the mysterious messages. Efforts were made to find the most feasible way to cast electric waves across the limitless interstellar spaces.

Dr. Charles P. Steinmetz, the engineering wizard of the General Electric Company and recent inventor of "synthetic" lightning, at the time estimated that a wireless plant powerful enough to cast a wave length capable of reaching Mars would cost $1,000,000,000 to construct and require from the whole country the same degree of energy and thoroughness with which it entered the war. Lofty towers, 1,000 feet high, would have to be constructed and all the electric power of the country would have to be concentrated into one great power plant or sending station. He also said that metal balloons filled with helium gas and sent up several thousand feet could be used instead of the 1,000 feet high towers, which might prove cumbersome to construct.

If such a station should be built, the resultant wave length would be beyond all previous conjecture. Wave lengths of 5,000 miles, while not common, are often cast and signals have been sent as far as 10,000 miles under unusual circumstances. However, there are a great many atmospheric conditions still to be contended with, even when sending a message a short distance, and even if a wave length sufficiently powerful enough to reach Mars was created there would be no assurance that it would reach its destination.

But the speculation that the thought of such a wireless plant induces is fascinating. Mars when nearest to the earth is only 35,000,000 miles away; at other times 250,000,000. If a message were flashed to Mars—electricity travels 186,000 miles a second—it would reach its destination in a little over twenty-two minutes if Mars were at its farthest point from earth, and about four minutes and twenty-two seconds when the planet is nearest.

During the April following the receipt of the mysterious messages Prof. David Todd, former head of the astronomical department of Amherst, made several serious attempts at Omaha, Neb., where a powerful receiving station was built under the supervision of the Government to get into communication with the planet. A specially constructed balloon, piloted by one of the greatest balloon experts in the world, Capt. Leo Stevens; all the facilities of the War Department's chief balloon school, experts from the Rockefeller Institute, apparatus from Johns Hopkins University, the very latest inventions in wireless telegraphy and wireless impulses and specially built instruments of various kinds assisted Prof. Todd in putting to test the belief that the Martians were trying to communicate with the people of the earth. The venture met with virtually no success as regards communciation with the inhabitants of the reddish hued planet.

Prof. Todd is now supervising the scientific work connected with the building of a giant telescope to be erected in a mine shaft in Chile. The shaft is to be sixty feet in diameter, and a magnification of 25,000,000 times theoretically will be obtained. This will bring Mars within about a mile and a half of the earth—that is optically—so that any life or activity upon its surface would be readily observable. Only a small part of the planet would thus be observed, it is true, and the spot would be moving rapidly past the telescope, but enough could probably be observed to insure some positive conclusions. In 1924 Mars will be within 35,000,000 miles of the earth, so that observations made at that time would be under the most favorable conditions.

Judging from past performances, it appears that if communication is to be established between the two planets Mars will have to take the initiative. We have a long way to go before we develop a wave length that will jump the 35,000,000 to 250,000,000 miles gap.

But now comes Signor Marconi to the United States, where radio has developed in leaps and bounds during the last year or so. If he is to succeed in catching the far flung messages from Mars it will be here.

Probably the most serious difficulty, aside from the engineering features of the strange groping through space of two planets, is the lack of a common medium for the exchange of thought. However, if the Martians can generate a wave length to reach from their planet to ours, it is possible that they will be of such super-mentality that they will easily overcome this drawback.

Again the question, "What will be the first message from Mars?" injects itself. What will it reveal?

Will it plunge our earth back a thousand years? Will it make our radio, telephonic and telegraphic systems seem, by comparison with those of Mars, to be as crude as the smoke signals of the Indian or the tomtom wireless of the African bushman? Such questions as these are, indeed, fearful to contemplate.

And how about the Martian himself—the subject of so much earthly speculation? Will he be, as H. G. Wells describes him in his book "War of the Worlds," a cross between a cuttlefish and a monkey, with a round grayish body, with a "sort of a face" and long, groping tentacles—a gruesome, hideous thing to look upon? Or will he be, as Edmond Perrier, director of the Museum of the Jardine des Plantes and constructor of the first picture of the Martian, describes him? The French scholar held that the Martian bears a certain resemblance to man, although many of the physical features are more prominent. He ascribes this to the differences in gravity and environment. He has said:

"The life which animates the earth also animates the other planets. From what goes on around us we may divine what is happening elsewhere by examining conditions under which each planet finds itself en rapport with every other. On the planets which are farthest away it is impossible that human beings should exist, for no organism could, for example, be found in the alkaline wastes of Jupiter, while Mercury, which is too near the Sun, could not engender life. Only Venus, the Earth and Mars are inhabitable.

"The low atmospheric pressure has produced considerable development of the pulmonary apparatus, and consequently the general character of the Martians has been influenced by this development, which is unknown on earth.

"The men on Mars are tall because the force of gravity is slight. They are blond because the daylight is less intense. They have less powerful limbs. They have some of the characteristics of our Scandinavian type, although very probably have larger skulls.

"Their large blue eyes, their strong noses, their large ears constitute a type of beauty which we doubtless would not appreciate except as suggesting superhuman intelligence."

He has further stated that the Martians live in an intellectual Utopia—a Utopia that is all the name implies.

Prof. Lowell, director of the observatory at Flagstaff, Ariz., and one of the greatest authorities on Mars, places the Martian people on a much higher intellectual plane than those on earth.

"Quite possibly," Prof. Lowell has written, "the Martian folk are possessed of inventions of which we have not dreamed, and with them electrophones and kinetoscopes are things of a bygone past, preserved with the veneration in the museums as relics of the clumsy contrivances of the simple childhood of the race.

"Certainly what we see hints at the existence of beings who are in advance of not behind us in the journey of life."

The canal system of Mars indicates that the planet's inhabitants are a race of super-engineers. If they outshine us mentally as much as Prof. Lowell claims, we can expect to find that our "modern" and much boasted of buildings are as the tepees of the Sioux, our engineering works no further advanced than the dams of the beaver, our inventions as simple as children's toys.

The Spider's Novel Bird Trap

THE Field Museum in Chicago once became infested with a large number of obnoxious spiders. They festooned the ceiling and great columns of the building with yards of their shuttle work. Scrubwomen and janitors tried in vain to rid the building of the pests and their work. Finally a small bird, known as the brown creeper, discovered the state of things and decided to take up its abode inside and assist the authorities in ridding the building of the pests.

For several days the bird flitted about very much as it pleased, wagging up and down column after column and probing its bill into every crevice, and he actually carried on a very effective work.

One morning, however, as an official of the museum was passing, an attendant remarked to him that it looked very much as if the bird were done for, and a subject for the museum's collection. Glancing in the direction indicated by the attendant the officer saw that the bird lay panting on its side at the bottom of one of the columns.

"Catch a fly," said the scientist to his attendant, as he took the bird into his hands. The fly soon being forthcoming, it was held on the point of a pin to the bird's beak, and to the surprise of both men the creeper bit at it voraciously. That didn't look as if the little fellow were about to die. The scientist was much perplexed and wondered what was the matter with the bird.

Then, turning the bird over in his hand, he found it had been entrapped in a large spider's web, which had bound the wing and tail together in such a manner as to preclude flying. It looked as if some old, wise spider had resented the bird's work of extermination and had purposely ensnared him in a trap.

The queer bandage was removed and the bird darted out of the building and was soon lost to sight.